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CHAPTER 1

A. References.

- 1) FAA Handbook 7110.65
- 2) NAVAIR 00-80T-114
- 3) OPNAVINST 3710.7
- 4) FAA Handbook 7210.2
- 5) Air Operations Manual
- 6) FAA AC 150/5210-20

****Any ref. Applicable to your airfield. ****

B. Purpose.

The purpose of the airfield driver training course is to ensure all individuals who operate vehicles and support equipment are properly trained so they can safely communicate and operate throughout NAS/MCAS airfields in accordance with the above references.

C. General Information.

- 1) Each individual whose job duties require that he/she traverse the airfield/ramp is required to obtain an airfield vehicle operator's license before operating a vehicle on any portion of the airfield. License use is limited to work-related areas during normal working hours.
- 2) It is the responsibility of all agencies operating at the airfield to inform their personnel of the driving license regulations and how to obtain a license.
- 3) New personnel will not be allowed to operate a vehicle on the airfield until obtaining an airfield license.

D. Policy.

1) The goal of this program is safety through strict compliance with airfield regulations. Accomplishing this goal requires those airfield users, tenant squadrons, and other users of the airfield to work closely with NAS/MCAS Air Traffic Control and Air Operations (or responsible authority) to promote the strict adherence to the rules and regulations pertaining to the airfield. An enforcement program is in place to monitor and enforce these regulations. Additionally, other major goals of the program are to:

- a. Provide initial training for new personnel and refresher training for all current personnel operating vehicles on the airfield.
- b. Stress the importance of safety procedures to prevent personal injury and property damage.

E. Authority.

An operator may be required to prove his/her authority to operate a vehicle on airfield property by exhibiting a current valid airfield driver's license to any Operation Department personnel upon request.

If the operator fails to show a license, he/she will not be allowed to continue operating a vehicle on the airfield.

CHAPTER 2

Definitions. (Add or delete any items that pertain to your facility)

Air Cargo - Terminals and aprons used for handling of airfreight/cargo.

Airfield - The area inside the airport perimeter fencing, including its buildings and facilities.

Airport Movement Area (AMA) - The runways, taxiways, and other areas of an airport/heliport which are utilized for ground taxiing, air taxiing, takeoff, and landing of aircraft, excluding of loading ramps and parking areas. At those airports/heliports with a tower specific approval for entry onto the movement area, that approval must be obtained from the control tower.

Apron - A defined area on an airfield accommodating aircraft for the purpose of loading or unloading passengers or air cargo.

Air Traffic Control (ATC) - A service operated by appropriate authority to promote the safe, orderly and expeditious flow of traffic.

Bird Aircraft Strike Hazard (BASH) - Incidents involving collision between any of nature's creatures and a naval aircraft.

Blast Fence - A structure used for the redirection of jet blast.

Control Tower - A facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft and vehicles operating in the vicinity of an airfield or on the movement area. The control tower also authorizes aircraft to land or takeoff at the airport controlled by the tower.

Expedite - Term used by ATC when prompt compliance is required to avoid the development of an imminent situation.

FAA - Federal Aviation Administration

Foreign Object Debris (FOD) - Any loose object or debris on the AMA.

Ground Support Equipment (GSE) - Equipment used to supply auxiliary needs to parked aircraft.

Intersection - Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

Jet Blast - Jet engine exhaust

Movement Area - The airport runways, taxiways, and safety areas. Clearance from the Control Tower must be obtained prior to operating in this area.

Non-Movement Area - Taxiways and aprons (ramp) areas not under the control of air traffic control.

Runway - A defined rectangular area for aircraft takeoff and landing. Runway in use by ATC is the duty runway or active runway.

Runway Safety Area (RSA) - A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an overshoot, undershoot, or excursion from the runway.

Taxiway - Paved area for aircraft movement between the runway and aprons or parking areas.

Without Delay - Instruction from ATC to expedite the movement of an aircraft or vehicle.

CHAPTER 3

A. Licenses.

1) All personnel that are required to drive on the airfield SHALL attend the Airfield Driver's License Course. Personnel will be required to show a valid State driver's license at the beginning of the course. There will be a written exam that requires a minimum passing score of 90% and a practical exam. The practical exam requires each member to demonstrate that he/she can properly traverse the airfield (day and night) using proper phraseology. ****Recommend a local LQS be utilized for station personnel. One person will be designated as an AVOC instructor (for each squadron, department, PWC, etc.) who will go over basic airfield layout, phraseology and procedures. When the LQS is completed, the instructor can schedule a formal class with ATC or course manager.

a. Station personnel will be issued a license valid for one year. They shall attend a refresher course annually. Deployed squadron personnel (essential driver's only) will have an expiration date one month past the scheduled end of the deployment. Contractor licenses will expire at the job completion date or at the contract termination date, whichever comes first. All others can obtain a one-day pass through Base Operations.

b. **Personnel failing either the knowledge or practical testing procedures will be required to retest after remedial study time is allowed. AVOC Course Managers shall keep a listing available of who is licensed and when their renewal procedures are due, and the course manager should contact those personnel prior to their renewal dates.**

B. Airfield Violations.

Because airfield violations have the potential to result in an accident, the Commanding Officer or designated representative must identify all violations and take corrective actions. The severity of the violation will determine the consequence, however when personnel have been identified as violating airfield procedures, they shall immediately report to Base Operations or after normal working hours, speak with the Facility Watch Officer on duty. Typically, a verbal warning will occur for the first violation, second violation will require member to attend another AVOC and third violation will result in a suspended license. **Be advised that the severity and not the number of violations will determine which action is appropriate.**

C. Radios.

All vehicles operating on airfield shall be radio equipped or be escorted by a radio equipped vehicle. Radios and escorts can be coordinated through Base Operations. FAA standards require that English (clear and concise) is the only authorized language for operating on airfields. If the tower controllers cannot understand your request, they will ask you to report to Base Operations for an escort. If you do not understand a transmission from the tower, do not assume. Hold your position and ask the tower to repeat their last transmission. Several vehicles operate on the airfield simultaneously; **don't assume** that the Tower is only talking to you. **The Tower's decision is final.**

D. Flags or Amber Lights.

All vehicles not regularly used on the airfield shall carry a flag 3 feet square attached to a staff and flying above the vehicle or be equipped with an amber-rotating beacon whenever operations on movement areas are necessary. Flags shall consist of a checkered pattern of international orange and white squares not less than 1 foot on each side. Flags or lights can be checked out through Base Operations.

CHAPTER 4

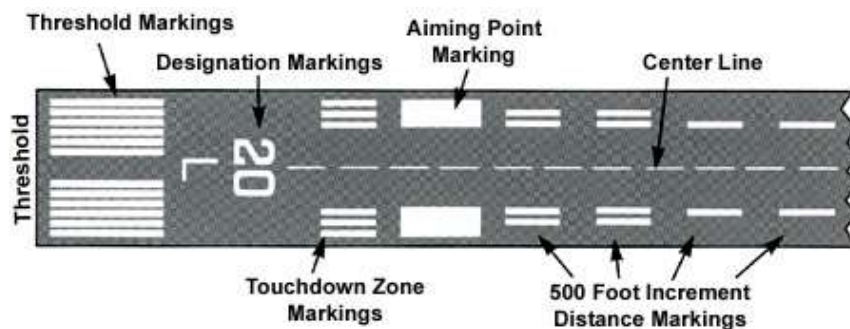
Knowledge of the airfield configuration, markings and signs is essential in reducing the potential of a runway incursion or mishap. Upon completion of this chapter, you should be able to recognize the following areas:

(The vehicle operator must be able identify each item given a blank airfield and recognize each area during the practical exam.)

A. Airfield Markings.

1) Runway - Runways have specific markings on them that are white. They will have numbers on each end and stripes down the middle with white lines on the edges. Runways that are served by an instrument approach will have more elaborate markings such as those shown in the figure. The most important thing to remember about a runway is that it

is meant for aircraft use, so never drive your vehicle on it unless you are authorized to do so.



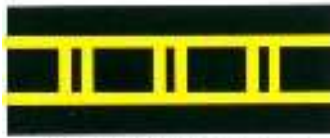
2) Taxiway - Taxiways are areas used by the aircraft to get to and from the ramp and the runway. Taxiways look similar to runways, but are usually not as wide and they don't have the same kind of markings. Taxiway markings are yellow. Instead of numbers, taxiways use letters or letter/number combinations for designators. Like runways, taxiways are meant for aircraft use. Authorization is normally required before you operate a vehicle on runways or taxiways. Aircraft cockpit windows are designed for pilots to see other aircraft. It can be difficult or impossible for the flight crew of large aircraft to see vehicles, particularly behind the wings or under the nose of the aircraft.



3) Hold Position Markings (Hold Short Lines) - As a taxiway comes up to the edge of a runway, you will see hold short lines. It is two solid yellow stripes followed by two broken yellow stripes. This is the airport version of a stop sign. Along the side of the taxiway next to the hold short lines, there may be a runway holding position sign (red and white) with the runway number. Tower clearance must be obtained to cross these lines.



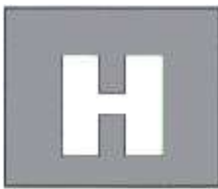
Hold Line Marking



ILS Holding Mark

4) ILS Hold Markings (shown above) - ILS hold markings advise pilots and vehicle operators where to stop to avoid interfering with aircraft navigational signals. At tower controlled airfields, a clearance is required to pass either of these markers and enter the runway. When exiting the runway you may see hold signs with the same marks that appear on the taxiways. Be certain to go beyond these hold markings and signs.

5) Helo Spot Markings - Some airfields have designated helicopter landing pads. This is depicted with an "H" inside of a square. Be especially careful when you drive near helipads and look up for landing helicopters. Like all aircraft, you must yield the right-of-way to a helicopter.



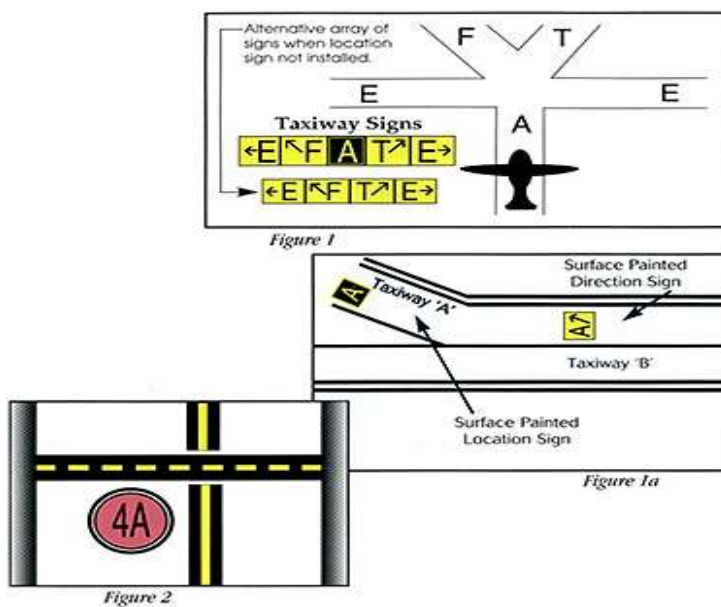
Helicopter Landing Area Marking

6) Ramp or Aprons - Aprons or ramps are the areas where aircraft park, load, and off load. Your work may require you to drive on an apron. If so, be very careful. Watch out for aircraft that are moving and always yield the right-of-way to them. Don't assume the pilot will see you and stop. He or she may be busy with other things like radio communications or checklist items. In addition to watching for moving aircraft, be careful not to get too close to a parked aircraft. Aside from nicks and dents that are expensive to repair, you could be hurt if an aircraft suddenly started its engine and you were too close. You should also be aware of the dangers of jet blast or prop wash. There have been several cases where vehicles have been overturned by jet blast. One way to tell if an aircraft is about to start its engine(s) or if the engine(s) is/are running is that the aircraft's flashing beacons will be on.

7) Traffic Lanes - Used for vehicle operations only; may be solid white lines or "zippered style".



8) Geographical Position Markings - Pink circle outlined in black with a number inside to depict controlled access points for vehicles to enter the Aircraft Movement Area. (Figure 2 below)



B. Airfield Lighting.

1) Runway Lights - Runways are edged with white lights. Near the ends of runways, the lights may be two-sided; amber on one side, white on the other. At the end of the runway you may also see runway threshold lights. These are red on one side, green on the other. If the amber or red lights are visible you may be approaching the end of the runway.



2) Taxiway Lighting - Taxiway edge lighting is blue. Some taxiways may have centerline lighting also, which is green.



C. Airfield Signs.

1) Instruction signs - Red background with white inscriptions.



2) Location signs - Black background with a yellow inscription and yellow borders includes: taxiway location, runway location, runway boundary, and ILS Critical Boundary signs.



3) Directional, Destination and Information signs - all have a yellow background with a black inscription.



4) Runway Distance Remaining Signs - Black background with a white numeral inscription and may be installed along one or both side(s) of the runway. The number indicated the distance (in thousands of feet) of landing runway remaining.



5) Arresting Gear - Yellow disc on a black background.

6) Additional signs - May include FOD reminders, TACAN checkpoints, wheels down signs, etc.

D. Driving on Non-Movement Areas.

Non-movement areas include taxiways, aprons and other areas **not** under control of Air Traffic Control. Anyone authorized to operate a motorized vehicle on the airfield may do so on the non-movement areas without being in positive radio contact with the Control Tower.



Non-Movement Area Boundary Marking

Non-movement/Movement area boundaries are delineated by the marking shown above. To proceed across this marking, vehicle operators must have an active airfield driver's license, a radio, be in communication with the control tower and/or a licensed escort. Not all airfield's have the above markings to delineate Non-movement/Movement area boundaries. Contact your Airfield Manager or AVOC Program Manager for definitions of your airfields Non-movement/Movement areas.



Runway Holding Position Marking

At no time may any vehicle operator, whether licensed for the movement areas or not, cross the above Runway Hold Position Marking without direct approval from the Control Tower.

Some airfields require separate licenses for Movement areas and Non-movement areas. Contact your Airfield Manager or AVOC Program Manager for license requirements on your airfields Non-movement/Movement areas.

E. FOD Procedures.

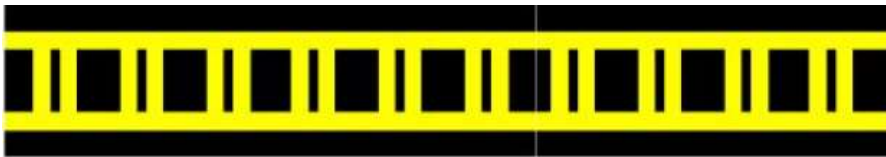
- 1) Vehicle operations on the flight line are a major source of foreign objects that damage aircraft tires and are ingested into jet engines with disastrous results. Whenever you enter the flight line area, or have driven on an unpaved area of the airfield, you will have to perform a FOD check prior to driving on any surface that aircraft use with engines running.
- 2) Each airfield has outlined procedures to adequately preclude the potential for allowing FOD on the airfield. They are items such as FOD shakers at entrances to airfields, signs to remind personnel to check vehicle tires and bed of pickup trucks for FOD and debris, and FOD walk-downs on a regular basis.
- 3) Additional means of FOD removal are Sweeper trucks that will regularly traverse airfields picking up FOD. Dead birds or animals are to be handled via BASH instructions.

F. BASH Procedures.

Each airfield should have a BASH program, identifying who the program manager is, and what steps are to be taken in the event dead birds or animals are found on the airfield, as a result of striking aircraft. Additionally, vehicle operators should be instructed on the importance of reporting bird and animal activity to the control tower so aircraft can be advised of these hazards. See your command BASH instruction for applicable details, or log onto the Safety Center web site under <http://www.public.navy.mil/navsafecen/Pages/index.aspx>

G. **Danger Areas.**

1) Danger areas on an airfield may be construction areas, obstructions, and radar operating areas (i.e. PAR site, TACAN, ASOS). Be aware of any/all danger areas on the airfield prior to driving on or around these sites.



ILS Hold Position Marking

2) Be aware of your environment and ensure you understand your local procedures that may require stricter tolerances or a permissible deviation.

H. **Layout.**

- Use a blank airfield diagram; label the following areas at NAS/MCAS:

- 1) Runways
- 2) Taxiways
- 3) Ramps or Aprons
- 4) Helo Spots
- 5) CALA's
- 6) Arm/De-Arm
- 7) Turn-up
- 8) Refueling Spots
- 9) Critical Buildings (i.e. Tower, Crash and Fire, Terminal, Base Operations etc.)
- 10) Restricted/Off Limit Areas

CHAPTER 5

A. **Phraseology.**

Acknowledge - Let me know you have received and understand this message.

Advise Intentions - Tell me what you plan to do.

Affirmative - Yes.

Confirm - My version is..., is that correct?

Correction - An error has been made in the transmission and the correct version follows.

Hold - Stop where you are.

Hold short of... - Proceed to, but hold short of a specific point.

Negative - No, or permission not granted, or that is not correct.

Proceed - You are authorized to begin or continue moving.

Read back - Repeat my message back to me.

Roger - I have received all of your last transmission. (It should not be used to answer a yes or no question.)

Say again - Repeat what you just said.

Standby - Wait... I will get back to you. (Standby is not an approval or a denial. The caller should reestablish contact if the delay is lengthy.)

Unable - I can't do it.

Verify - Request confirmation of information.

Wilco - I have received your message, understand it, and will comply.

1) Phonetic Alphabet.

A Alpha	N November
B Bravo	O Oscar
C Charlie	P Papa
D Delta	Q Quebec
E Echo	R Romeo
F Foxtrot	S Sierra
G Golf	T Tango
H Hotel	U Uniform
I India	V Victor
J Juliet	W Whiskey
K Kilo	X X-ray
L Lima	Y Yankee
M Mike	Z Zulu

2) When operating on the airfield, use clear, concise and correct phraseology. Know your vehicle call sign. Speak clearly, distinctly and know exactly what you want to say. Be absolutely sure you understand what the Control Tower has said. If you are unsure of any part, do not move and request the tower to repeat their instructions. There are four basic steps: 1) identify who you are calling and who you are, 2) wait for the tower to respond, 3) state your request and your position, and 4) read back exactly what the tower authorized you to do.

The following are examples of proper phraseology:

Driver - "NAS/MCAS Tower, Maintenance one" ***Wait for a response***

Tower - "Maintenance one, NAS/MCAS Tower"

Driver - "NAS/MCAS Tower, Maintenance one request permission to cross or proceed across (runway XX, taxiway X or helipad X) at (position on the airfield)"

Or

"Request permission to proceed on (runway XX, taxiway X or helipad X) from position) to (requested location)"

Tower - "Maintenance One, NAS/MCAS Tower proceed on (runway XX, taxiway X or helipad X) from (position) to (requested location)"

Or

"Maintenance One, NAS/MCAS Tower proceed across (runway XX, taxiway X, helipad X) at (position)"

Or

"Maintenance One, NAS/MCAS Tower cross runway XX at (position of vehicle)"

Or

"Maintenance One, NAS/MCAS Tower proceed as requested"

Or

"Maintenance One, NAS/MCAS Tower, hold short/hold short of (runway, taxiway, helipad etc)"

Or

"Maintenance One, NAS/MCAS Tower, hold your position"

Driver - "NAS/MCAS Tower, Maintenance one holding position/holding short of/proceeding across/on runway XX, taxiway X, or helipad X etc."

Driver - "NAS/MCAS Tower, Maintenance one is off/exited runway XX, taxiway X or helipad X"

Tower - "Maintenance one, NAS/MCAS Tower roger"

****** Repeat towers instructions verbatim before you start moving your vehicle!**

******** Tower may request you to expedite or cross without delay when an aircraft is on final. There should be ample time to cross, however if you do not feel comfortable expediting, then immediately inform the tower to disregard your request, you will hold short or will hold your position. Never tell the tower you will hold your position until the aircraft has landed or taken off. You must restate your request or wait for the tower to grant you permission to cross or proceed on the runway.

B. Hold Short Procedures.

Runway incursions are the number one airfield hazard to pilots and air traffic controllers. FAA standards direct that all ATC hold short instructions be read back verbatim. Do not answer with roger, wilco, copy, ten four, understand etc. You shall read back that you will hold short of, or are holding your position at (specific location). Failure to read back hold short instructions will be handled as an airfield violation.

C. "99" Alerts.






A "99" is a general term commonly used in the tower meaning (attention all vehicles). After you hear the "99" transmission, it applies to all vehicles operating on the airfield. Follow the "99" request and maintain radio silence until advised.

Example: "99, all vehicles remain clear of runway XX/helipad X, emergency in progress."

D. Light Gun Signals.

If you or the control tower loses communication capabilities, the control tower will attempt to communicate with a series of light gun signals. If the tower does not respond after a couple of attempts, look directly at the tower, flash your headlights and wait for a signal (ensure there are no aircraft operating in the area so your headlights don't night blind the pilot). If you still receive no response, attempt to exit the field without proceeding on or across any movement area, however if you are not able to properly exit the field, hold your position and tower/operations will dispatch a vehicle to your location.

Light signals and their meanings:

Steady green -	Okay to cross runway or taxiway; proceed; go.	
Steady red -	Stop.	
Flashing red -	Clear the runway or taxiway.	
Flashing white -	Return to starting point on airport.	
Alternating red and green -	General warning signal. Use extreme caution. <i>Note: The warning signal is not a prohibitive signal and can be followed by any other light signal as circumstances permit.</i>	

E. Frequency Congestion.

An airport is a dynamic and complex environment. The number of vehicles simultaneously operating on the airfield can cause the FM frequency to be saturated. In addition, the controllers are not just talking to vehicles; they are responsible for the entire ground movement. If the tower doesn't answer you immediately, they may be talking to aircraft or issuing clearances on a different frequency. Be patient, ensure your radio is working properly, avoid calling the tower when parked next to an aircraft starting up or doing high power turn-ups and utilize correct phraseology.

CHAPTER 6

A. General Rules of Operations.

- 1) Never operate any vehicle on the airfield movement areas without establishing two way communications with the control tower and ensuring all equipment is secure and the vehicle is free of FOD.
- 2) Smoking is prohibited on any portion of the airfield.
- 3) All vehicles must be maintained in generally sound mechanical condition to prevent breakdowns, excessive leaking of fluids or inability to comply with other requirements of this course.
- 4) Only operate in areas authorized by the control tower.
- 5) Vehicles shall not be driven within 25 feet of an aircraft unless directly involved in servicing, cargo handling, or responding to an aircraft emergency.

- 6) Whenever the driver is not in the vehicle, they shall turn off the ignition, set brake and leave doors unlocked. The driver shall ensure they can still hear the radio while away from the vehicle.
- 7) Anytime you become disoriented confused, uncertain etc. hold your position and ask for guidance from the tower.
- 8) Always give way to emergency vehicles responding to an emergency.
- 9) All drivers will display common courtesy to taxiing aircraft by angling their vehicle so that headlight beams do not directly impact cockpit areas.
- 10) Maintain radio discipline at all times. No horseplay.

B. Speed Limits.

Vehicle operators should maintain maximum awareness of aircraft while operating on the airfield. Speed limits are as follows:

- 1) Emergency - as required
- 2) Ramps/Aircraft in tow - 5 mph
- 3) Runways - 25 mph
- 4) Taxiway - 15 mph

C. Aircraft Emergencies/Mishaps.

All vehicles shall slow to a stop and hold their position whenever emergency vehicles are observed responding to or supporting aircraft operations. Vehicles may proceed only with permission from the control tower. Vehicles shall never be driven between a fire truck and an aircraft. If able, exit the airfield and maintain radio silence.

D. Night/Adverse Weather Driving.

1) Driving on an airfield at night can be intimidating. When the airport lighting is on, the airfield may look like a confusing array of blue, white and red lights. Display all front and back taillights at night. Headlights on low beam are also required at night. If you are inexperienced with driving on the airfield at night, it is a good idea to take someone with you that is familiar. If that is not possible, allow yourself a little extra time to get to your destination driving slower than normal. If you are not absolutely sure, ASK SOMEONE.

2) Adverse weather can be very hazardous to drive in. Snow, rain, freezing rain, and even fog can affect airfield operations. Give yourself plenty of time to get to your destination. Drive slower than normal, and if your vehicle has a rotating beacon, use it.

3) Flashing lights or parking lights will be used at night and inclement weather when vehicles are temporarily parked on any part of the aircraft-parking ramp. This does not apply if vehicles are

parked in a designated area. Headlights of a stopped vehicle shining towards a moving aircraft at night will be turned off immediately so the pilot's night vision will not be affected. The vehicle parking lights or emergency flashers will be turned on so its position will be known.

E. Reporting problems.

Any problems you encounter on the airfield should be reported to Base Operations personnel at bldg. XX or call at x1234. All FOD, including dead animals and birds, shall be reported to appropriate personnel.

CHAPTER 7

A. Questions/Answer period.

Review any areas that might be confusing to the drivers. If personnel have completed their LQS, then they should have a solid foundation before they enter the class. Ensure the written test is at least 25 questions, to include illustrating an airfield diagram. They can demonstrate their knowledge of the airfield and proper phraseology when they take the practical exam. Drive to a spot on the airfield, and have them get from one point to another using the radios. **The key to a successful AVOC is enthusiasm, enforcement, tracking and involvement.**

B. Point of contact/Telephone numbers.

ATC Analyst
Comm: (757) 444-3520 X7240
DSN: 564-3520 X7240